

Claims

1. A prefabricated concrete slab system comprising:

at least one prefabricated rectangular male concrete slab having a plurality of reinforcing elements extending longitudinally and transversely through said slab and projecting beyond one or more side edges of said male slab to form spaced male connectors;

at least one prefabricated rectangular female concrete slab having a plurality of female socket fixtures spaced along one or more side edges of said female slab with or without corresponding pairs of socket fixtures on opposite side edges of said female slab interconnected by reinforcing elements extending longitudinally and transversely through said female slab, said female socket fixtures open on a top surface of said female slab;

said male connectors along one side edge of said male slab received in corresponding female socket fixtures along one side edge of said female slab through said socket fixture opening; and

solidified filler in said female socket fixtures to rigidly fix said male connectors in said female socket fixtures and provide continuous reinforcement between said male slab reinforcing elements and said female slab reinforcing elements.

2. The prefabricated concrete slab system of claim 1, further comprising a plurality of said prefabricated rectangular male concrete slabs having its male connectors received in corresponding female socket fixtures of a plurality of female concrete slabs whereby said solidified filler in said female socket fixtures provides continuous reinforcement between said male slab reinforcing elements and said female slab reinforcing elements, both longitudinally and transversely through all of said concrete slabs.

3. The pre-fabricated concrete slab system of claim 1, wherein said male slab and said female slab reinforcing elements are steel reinforcing rods.

4. The prefabricated concrete slab system of claim 1, wherein said male connectors each includes a projecting end of said male slab reinforcing element with an enlargement thereon and each female socket fixture includes an enlarged chamber open at the top for receiving said male connector enlargement.

5. The prefabricated concrete slab system of claim 4, wherein said male slab reinforcing element projecting end is threaded and said enlargement thereon is a threaded nut threadedly received on said projecting end.

6. The prefabricated concrete slab system of claim 1, wherein said female slab reinforcing element interconnecting each pair of opposite side edge socket fixtures is a pair of steel rods welded to opposite sides of each female socket fixture.

7. The prefabricated concrete slab system of claim 4 wherein said open top of each said female socket fixture is in the general shape of a keyhole with an elongated slot open at the top and extending from said female slab side edge to said open enlarged chamber.

8. The prefabricated concrete slab system of claim 7 wherein said female socket fixture also has a generally keyhole shaped opening along said female slab side edge with said slot opening into a bottom channel for receiving said metal connector projecting end when said male connector enlargement is received in said female socket fixture enlarged chamber.

9. The prefabricated concrete slab system of claim 1, wherein said male and female concrete slabs have intersecting longitudinally and transversely extending channels recessed into bottom surfaces of said slabs and holes extending through said slabs where said channels intersect.

10. The prefabricated concrete slab system of claim 9, wherein grout or other bedding material is injected into said longitudinal and transverse channels of said male and female slabs through said

slab holes to fill any voids between said slab bottom surfaces and a subbase on which said slabs are positioned.

11. A prefabricated concrete slab system comprising:

a plurality of rectangular male concrete slabs having a plurality of reinforcing elements extending longitudinally and transversely through each of said slabs, said reinforcing elements projecting beyond side edges of each male slab to form spaced male connectors;

a plurality of prefabricated rectangular female concrete slabs having a plurality of female socket fixtures along side edges of each said female slab, said female socket fixtures spaced along said side edges to correspond with said spacing of said male connectors, and each corresponding pair of socket fixtures on opposite side edges of said female slabs interconnected by reinforcing elements extending longitudinally and transversely through said female slabs;

said male connectors along one side edge of said male slabs received in corresponding female socket fixtures along one side edge of each adjacent female slab through an opening in a top edge of said female socket fixtures; and

said male connectors received in said female socket fixtures providing continuous reinforcement between said longitudinally

extending reinforcing elements of said male concrete slabs and said female concrete slabs and between said transversely extending reinforcing elements of said male concrete slabs and said female concrete slabs.

12. The prefabricated concrete slab system of claim 11, wherein said male slab and said female slab reinforcing elements are steel reinforcing rods.

13. The prefabricated concrete slab system of claim 11, wherein said male connectors each includes a projecting end of said male slab reinforcing element with an enlargement thereon and each female socket fixture includes an enlarged chamber open at the top for receiving said male connector enlargement.

14. The prefabricated concrete slab system of claim 13, wherein said male slab reinforcing element projecting end is threaded and said enlargement thereon is a threaded nut threadedly received on said projecting end.

15. The prefabricated concrete slab system of claim 11, wherein said open top of each said female socket fixture is in the general shape of a keyhole with an elongated slot open at the top and extending from said female slab side edge to said open enlarged chamber.

16. The prefabricated concrete slab system of claim 11, wherein said male and female concrete slabs have intersecting longitudinally and transversely extending channels recessed into bottom surfaces of said slabs and holes extending through said slabs where said channels intersect.

17. A male and female connector system for interconnecting reinforcing elements embedded in a pair of mating concrete structures which comprises a reinforcing element in one of said mating concrete structures having an end projecting beyond a side edge of said one mating concrete structure with an enlarged head thereon to form a male connector and a female socket fixture connected to a reinforcing element in said other concrete structure and positioned along a side edge of said other concrete structure for receiving said male connector through an open top of said female socket fixture.

18. The male and female connector system of claim 17, wherein said female socket fixture includes an open enlarged chamber for receiving said male connector enlarged head.

19. The male and female connector system of claim 18, wherein said reinforcing element projecting end is threaded and said enlarged head thereon is a threaded nut threadedly received on said projecting end.

20. The male and female connector system of claim 18, wherein said open top of said female socket fixture is in the general shape of a keyhole with an open elongated slot extending from said other concrete structure side edge to said open enlarged chamber.

21. The prefabricated concrete slab system of claim 1, wherein the number of male slab side edges with projecting reinforcing elements and the number of female slab side edges with female socket fixtures depends upon the number of adjacent contacting male and female slab edges which require reinforcement continuity.

22. The prefabricated concrete slab system of claim 21, wherein the number of side edges containing solidified filler in said female socket fixtures depends on the number of contacting male slabs requiring reinforcement continuity with corresponding adjacent female slabs.

23. A method for assembling a prefabricated concrete slab system for roadways and the like which comprises the steps of:

positioning at least one prefabricated rectangular female concrete slab on a roadbed, said female slab having a plurality of female socket fixtures spaced along one or more side edges of said female slab which socket fixtures are connected to reinforcing elements extending longitudinally and transversely through said female slab and are open on a top surface of said female slab;

positioning at least one prefabricated rectangular male concrete slab, said male slab having a plurality of reinforcing elements extending longitudinally and transversely through said slab and projecting beyond one or more side edges of said male slab to form spaced male connectors, such that said male connectors along one side edge of said male slab are received in corresponding female socket fixtures along one side edge of said female slab through said socket fixture openings; and

filling each of said female socket fixtures having said male connectors received therein with a binder material which, when solidified, fixes said male connectors within said female socket fixtures and provides continuous reinforcement between said male slab reinforcing elements and said female slab reinforcing elements.

24. The method as defined in claim 23, further including the step of injecting grout or other bedding material into longitudinal and transverse channels recessed into bottom surfaces of said male and female concrete slabs through holes extending vertically through said slabs where said channels intersect, prior to filling said female socket fixtures with said binder material.

25. The method of claim 23, further including the step of filling a keyway formed between side walls of adjacent male and female concrete slabs with said binder material, simultaneous with or



subsequent to the step of filling said female socket fixtures, such that when said binder material in said keyway is solidified, said adjacent male and female slabs are rigidified against relative vertical movement.